

Applicant : Mark A. Schubert et al.
Serial No. : 10/033,830
Filed : December 20, 2001
For : Seal for Electrochemical Cell

Art Unit: 1746
Examiner: Monique M. Wills

REMARKS

Claims 1, 4, 6, 8, 11-14, 28, 31 and 32 have been amended; claims 2, 3, 5 and 33 have been cancelled; and claims 39-52 have been added. Claims 1, 4, 6-32 and 34-52 are now pending in the application. Reconsideration and reexamination of the application, as amended, are respectfully requested.

Claim 1 has been amended to recite that the thermoplastic material comprises a polypropylene matrix rather than a polyolefin matrix and to incorporate the limitations of claim 5, reciting that the aromatic polymer comprises at least one polymer selected from the group consisting of poly(phenylene oxides) and polystyrenes. Claim 31 has been amended in a like manner.

Claim 28 has been written in dependent form, including the limitations of claim 1.

Claim 32 has been amended to be consistent with amended claim 31, from which claim 32 depends.

Claims 4, 8 and 11-14 have been amended by changing "polyolefin" to --polypropylene-- to correspond with the amendment of claims 1 and 28.

With the cancellation of claims 2, 3, 5 and 33, claims 4 and 6 have been amended to depend from claim 1, and claim 34 has been amended to depend from claim 31.

New claims 39-52 have been added. These claims correspond generally to original claims 21-28 and 32-38 but do not recite ASTM numbers. It would be understood by the skilled artisan that the ASTM test methods referred to in the specification, current at the time the application was filed, can be used to determine the values of the corresponding material properties, or, alternatively, any other test methods that would give essentially the same results could be used.

In the Office action mailed on July 1, 2004, claims 1-38 were rejected. Claims 21-38 were rejected under 35 USC § 112, second paragraph, as being indefinite. Claims 1-4, 12-13, 17-18, 21-26, 28-33 and 36-38 were rejected under 35 USC § 102(b) as being anticipated by Gordy (U.S. Patent No. 5,198,314). Claims 1-7, 12-13, 15, 17-19, 21-32 and 36-38 were rejected under 35 USC § 102(e) as being anticipated by Schubert (U.S. Pub. No. 2001/0014419). Claims 8-11, 14 and 20 were rejected under 35 USC § 103(a) as being unpatentable over

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Schubert (U.S. Pub. No. 2001/0014419). Claims 16 and 33-35 were rejected under 35 USC §103(a) as being unpatentable over Schubert (U.S. Pub. No. 2001/0014419) in view of Shuichi et al. (JP 10-050,278). The rejection under 35 USC § 112, second paragraph, is traversed below, the rejection under 35 USC § 102(b) has been overcome by the above amendments, and the rejections under 35 USC § 103(a) have been either overcome by the above amendments or are traversed below.

Claims 21-38 were rejected under 35 USC § 112, second paragraph, as being indefinite because the terms "ASTM D2290", "ASTM D638", "ASTM E831" and "ASTM D648" are of uncertain meaning, rendering the claims vague and indefinite, and because it is unclear as to what testing methods are involved to determine the recited properties. The Examiner also asserted that if the ASTM testing standards are trademarks or trade names, claims 21-38 do not comply with the requirements of 35 USC §112, second paragraph, since a trademark or trade name cannot be used properly to identify any particular material or product (Ex parte Simpson, 218 USPQ 1020 (Bd. App. 1982)). Applicants respectfully disagree. The recited ASTM test numbers clarify, rather than render indefinite, the claims by specifying the test method to be used to determine the material properties recited in the claims. Using ASTM test numbers in this way is a practice that has been in use for many years. In class 429, ASTM standard numbers have been recited in the claims of numerous patents, issued as recently as October 2003 and as early as at least 1978. A search for the term "ASTM" on the Trademark Electronic Search System on September 17, 2004, did not show any of the terms "ASTM D2290", "ASTM D638", "ASTM E831" and "ASTM D648", and where ASTM numbers have been used in the claims of patents in class 429 since 1978, none have been shown as trademarks. In claims 21-38 the recited ASTM numbers refer not to a particular material or product but to test methods used to determine the values of the corresponding material properties. For these reasons, the recitation of "ASTM D2290", "ASTM D638", "ASTM E831" and "ASTM D648" does not render claims 21-38 indefinite.

Claims 1-4, 12-13, 17-18, 21-26, 28-33 and 36-38 were rejected under 35 USC § 102(b) as being anticipated by Gordy. Independent claims 1 and 31 have been amended to recite that the seal member comprises a thermoplastic material comprising a polypropylene matrix, rather than a polyolefin matrix, and that the aromatic polymer comprises at least one polymer selected

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from the group consisting of poly(phenylene oxides) and polystyrenes, rather than that the aromatic polymer has a repeating unit that comprises at least one aromatic functional group.

Claim 28 has been amended to depend from claim 1. Gordy discloses a seal member comprising a mixture of polyphenylene sulfide (an aromatic polymer), up to 40 weight percent glass fiber and up to 50 weight percent olefinic modifier; the seal member of the disclosed invention always contains polyphenylene sulfide. Amended claims 1 and 31 recite an aromatic polymer comprising at least one of poly(phenylene oxides) and polystyrenes, neither of which is disclosed by Gordy. Therefore, Gordy does not anticipate claims 1-4, 12-13, 17-18, 21-26 and 28-33.

Independent claim 36 recites an electrochemical cell with a thermoplastic seal member having a tensile creep deformation, a tensile modulus, a coefficient of thermal expansion and a heat deflection temperature within recited ranges. The Examiner rejected claims 36 and 37 because Gordy employs the same polyolefin/polyphenylene sulfide material set forth by Applicant. However, none of the embodiments of the present invention disclosed in the examples includes polyphenylene sulfide. Because the seal member disclosed by Gordy contains polyphenylene sulfide, it is not reasonable to expect that the seal member disclosed by Gordy will necessarily have the properties recited in claim 36.

Claims 1-7, 12-13, 15, 17-19, 21-32 and 36-38 were rejected under 35 USC §102(e) as being anticipated by Schubert (U.S. Pub. No. 2001/0014419). Independent claims 1 and 31 have been amended to recite that the seal member comprises a thermoplastic material comprising a polypropylene matrix, rather than a polyolefin matrix, and that the aromatic polymer comprises at least one polymer selected from the group consisting of poly(phenylene oxides) and polystyrenes, rather than that the aromatic polymer has a repeating unit that comprises at least one aromatic functional group. Claim 28 has been amended to depend from claim 1. Schubert does not disclose a seal member comprising either polypropylene or an aromatic polymer comprising at least one of poly(phenylene oxides) and polystyrenes, so claims 1 and 31 are not anticipated by Schubert. The Examiner considered the limitations in claims 21-30, 32 and 36-37 to be inherent properties of the seal member disclosed by Schubert. However, NORYL® PX-0844 is similar to the NORYL® 6101 disclosed by Schubert in that both contain high impact polystyrene (HIPS) and poly(phenylene oxide), and NORYL® PX-0844 has a typical tensile modulus of about 325,000 psi, as shown in Fig. 6 of the present application. Therefore, the

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properties recited in claim 36 are not inherent properties of the seal member disclosed by Schubert and art not anticipated thereby. Since independent claims 1, 31 and 36 are not anticipated by Schubert, none of 1-7, 12-13, 15, 17-19, 21-32 and 36-38 are.

Claims 8-11, 14 and 20 were rejected under 35 USC §103(a) as being unpatentable over Schubert (U.S. Pub. No. 2001/0014419). However, with the above amendments of claim 1, Schubert does not contain all of the limitations of claims 8-11, 14 and 20 cannot render these claims obvious.

Claims 16 and 33-35 were rejected under 35 USC §103(a) as being unpatentable over Schubert (U.S. Pub. No. 2001/0014419) in view of Shuichi et al. (JP 10-050,278). This rejection has been overcome by the above amendments. Claim 16 now includes the limitations of amended claim 1, claim 33 has been cancelled, and claims 34 and 35 now include the limitations of claim 31.

For the above reasons, Applicants believe that claims 1, 4, 6-32 and 34-52 are in condition for allowance. Reconsideration of the application as amended and withdrawal of the rejections are requested.

Respectfully submitted,

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